UNITED
NATIONS

WORLD CONFERENCE ON
NATURAL DISASTER REDUCTION

Yokohama, Japan
23-27 May 1994

Distr.
LIMITED

A/CONF.172/L.4
26 May 1994

ORIGINAL: ENGLISH

Agenda item 10 (b)

NATURAL DISASTER REDUCTION: HAZARD-RESISTANT STRUCTURES

Report of Technical Committee B

1. At its 1st plenary meeting, on 23 May 1994, the Conference approved the organization of its work as set out in document A/CONF.172/3 and decided to allocate agenda item 10 (Natural disaster reduction) to the Technical Committees. Technical Committee B was organized by the International Council for Scientific Unions (ICSU) Special Committee for the International Decade for Natural Disaster Reduction, representing both ICSU and the World Federation of Engineering Organizations (WFEO)/Union of International Technical Associations (UITA) and considered agenda item 10 (b) on 23 May.

2. Technical Committee B had before it documents A/CONF.172/8 and Add.1-7, which included the programme of the technical session and summaries of the presentations.

3. The Chairman of Technical Committee B was Mr. Driss Bensari (Morocco). The moderator of the session was Sir James Lighthill, Chairman of the ICSU Special Committee.

4. The following speakers made presentations:

(a) Sir James Lighthill, on behalf of ICSU, who spoke on "What science and technology can do for natural disaster reduction";

(b) Professor Jamilur R. Choudhury, who spoke on "Cyclone shelters in areas prone to storm surge";

(c) Professor Alan G. Davenport, who spoke on "The reduction of structural vulnerability to natural disasters";

(d) Mr. Stuart Mustow and Mr. Scott Steedman, on behalf of WFEO/UATI, who spoke on "Design and construction of buildings to withstand natural disasters";

(e) Professor Anand S. Arya, who spoke on "Protection of non-engineered housing from natural hazards";

(f) Professor Alberto Giesecke, who spoke on "Reconditioning of existing adobe housing to mitigate the effects of earthquakes";

(g) Mr. Ong Eng Long, Malaysian Rubber Producers Research Association, who spoke on "Development of light weight natural rubber-based bearings for earthquake protection of small buildings".

5. The Committee made recommendations in the form of the following two messages:

1. Message for entire communities

6. Communities in disaster-threatened areas need to be given this vital preparedness message: that the community as a whole can work together to achieve, and to benefit from, hazard-resistant structures:

(a) With the community as a whole contributing to the planning of multi-purpose cyclone shelters in coastal areas subject to storm surge - and winning the fullest possible use of them for community purposes;

(b) With key design features (e.g. hip-roof constructions, accompanied by adequate anchorage and bracing) that give protection against extreme winds being insisted upon by communities under threat;

(c) With the community itself taking action to reinforce existing masonry buildings against earthquake hazards by well-tried measures that include e.g. horizontal bands, vertical splints, corner bracing (or wire-mesh reinforcement for adobe buildings).

7. Community leaders - and teachers - have special responsibilities to ensure that this preparedness message (among others) is spread widely among threatened communities.

2. Message for Governments

8. Additional responsibilities (primarily in relation to engineered structures) are shared among national, regional and local governments - along

with other bodies, including the insurance industry and some international agencies:

(a) To acknowledge the key role of those sectors of the economy that influence the construction of buildings and of infrastructure facilities;

(b) To recognize that well-established engineering methods for achieving enormous increases in hazard resistance at just a marginal increase in cost exist - and are incorporated in all modern building codes;

(c) To create the educational and training environment needed to ensure that such methods can be implemented in practice (and in detail).

9. Above all, they need to create policy frameworks that give the industry clear incentives to employ such methods.